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In response to the Office Action dated April 2, 2004, Applicants respectfully request reconsideration based on the following remarks. Applicants respectfully submit that the claims as presented are in condition for allowance.

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Claims 1, 20 and 27 were objected to because the Examiner believes that the invention is directed to detecting soft tissue non-calcified plaque and hard tissue calcified plaque. The Examiner's interpretation of the invention is not complete. As described in paragraph [0022], the invention detects hard tissue and the soft tissue (e.g., lipid or fat) portions of the calcified plaque. Using the higher x-ray energy level, 140 kV, and no contrast agent produces a second set of image data 404 that includes the hard tissue (e.g., calcium deposits) portion of the calcified plaque. Subtracting the second set of image data 404 from the first set of image data 402 results in a third set of image data 406 that includes the soft tissue portion of the calcified plaque. In this manner, the soft tissue portion of calcium plaque can be viewed and analyzed.

Thus, the claim language is consistent with the specification. Withdrawal of the claim objections is respectfully requested.

Claims 20-22 were rejected under 35 U.S.C. § 102(e) as being anticipated by Ogawa. This rejection is traversed for the following reasons. Claim 20 recites "said first set of image data includes hard tissue and soft tissue calcified plaque . . . said second set of image data contains said hard tissue calcified plaque . . . and calculating a third set of image data wherein said third set of image data contains said soft tissue calcified plaque data." Ogawa fails to teach these features as acknowledged by the Examiner in the analysis of claims 1 and 5. Rather, the Examiner indicates that the contents of the image data are not accorded patentable weight and cites MPEP §§ 2114 and 2115. These sections of the MPEP relate to functional language in apparatus claims and dictates that apparatus claims must be structurally different from the prior art. In the present case, however, claim 20 recites "generating of the first set of image data in response to a first x-ray energy level and generating of the second set of image data in response to a second x-ray energy level . . . said second x-ray energy level is higher than said first x-ray energy". This recitation of the differing energy levels along with the indication of the types of image data define a structural difference in the apparatus, not simply a function.

Thus, this claim language should be considered. Once the claims are properly construed, Ogawa fails to teach the elements of claim 20.

For the above reasons, claim 20 is patentable over Ogawa. Claims 21-22 are dependent on claim 20 and patentable over Ogawa for at least the reasons advanced with reference to claim 20.

Claims 1 and 5 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Ogawa et al., US 6,278,760 B1 (hereinafter "Ogawa") in view of Tsutsui, US 5,396,530 (hereinafter "Tsutsui") and Merickel et al., US 4,945,478 (hereinafter "Merickel").

As noted by the Examiner, Ogawa fails to teach a method used for plaque characterization. Applicants disagree with the Examiner that Tsutsui teaches a "method for plaque characterization ... comprising: obtaining a first set of image data ... said first set of image data includes hard tissue and soft tissue calcified plaque data; obtaining a second set of image data ... said second x-ray energy level is higher than said first x-ray energy level and said second set of image data contains said hard tissue calcified plaque data; and calculating a third set of image data ... wherein said calculating includes subtracting each said second pixel element from said corresponding first pixel element and said third set of image data contains said soft tissue calcified plaque data" as recited in Claim 1. In contrast, the portion of Tsutsui referenced by the Examiner teaches that "if the object is a living body, the concept may be applicable to the separation of a bone, a soft tissue, a projected blood vessel or a calcified tissue." Determining whether a portion of an object is a bone, a soft tissue, a projected blood vessel or a calcified tissue is not the same as performing "performing plaque characterization" and determining whether a portion of an object is "hard tissue calcified plaque" or "soft tissue calcified plaque" as recited in Claim 1.

Similarly, the Examiner's reference to Merickel does not cure the deficiency in Ogawa. Merickel is directed to "noninvasive identification and evaluation of atherosclerosis using multidimensional MRI." This is not the same as "plaque characterization" performed by "obtaining ... data created in response to a first x-ray energy level" and "obtaining data created in response to a second x-ray energy level" as recited in Claim 1. Being able to perform a procedure using MRI technology does not imply that the procedure can be performed using x-ray technology. Further, even if

Merickel did apply to x-ray technology, it does not teach "performing plaque characterization" and determining whether a portion of an object is "hard tissue calcified plaque" or "soft tissue calcified plaque" as recited in Claim 1. In contrast, Merickel, in the section referred to by the Examiner, teaches the class types: normal wall, fatty plaque, fibrous plaque and complex plaque with possible calcifications. This is not the same as classifying calcified plaque as "hard tissue calcified plaque" or "soft tissue calcified plaque" as recited in Claim 1.

For at least these reasons, Claim 1 is patentable over Ogawa in view of Tsutsui and Merickel. Claim 5 depends from claim 1 and is patentable for at least the reasons advanced with reference to claim 1.

Claims 2-4 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Ogawa, Tsutsui and Merickel, and further in view of Gordon et al., US 5,661,774 (hereinafter "Gordon").

Gordon discloses a dual energy baggage scanning assembly, which is distinct from the plaque characterization method of Claim 1. Thus, there is no motivation or suggestion in Gordon to combine Gordon with the combination of Ogawa, Tsutsui and Merickel. Even if Gordon is combined with Ogawa, Tsutsui and Merickel, the combination does not render Claim 2 obvious, because Gordon does not cure the deficiencies of the combination of Ogawa, Tsutsui and Merickel as discussed previously in reference to Claim 1. Therefore, Claim 2 is patentable over the combination of Ogawa, Tsutsui, Merickel and Gordon. For the same reasons advanced with respect to Claim 2, Claims 3 and 4 are also believed to be patentable.

Claims 6 and 7, 9 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Ogawa in view of Tsutsui and Merickel. For at least the reasons described above in reference to Claim 1, Claims 6 and 7, 9 are patentable over Ogawa in view of Tsutsui and Merickel.

Claims 8 and 16-18 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Ogawa, Tsutsui and Merickel, and further in view of Brown, US 5,459,769 (hereinafter "Brown").

Brown does not cure the deficiency of the combination of Ogawa, Tsutsui and Merickel as described above in reference to Claim 1. Accordingly, Claims 8 and 16-18 are believed to be allowable due at least to their dependencies on Claim 1.

Claims 10-15 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Ogawa, Tsutsui and Merickel, and further in view of Keyes et al., US 4,559,557 (hereinafter "Keyes").

Keyes does not cure the deficiency of the combination of Ogawa, Tsutsui and Merickel as described above in reference to Claim 1. Accordingly, Claims 10-15 are believed to be allowable due at least to their dependencies on Claim 1.

Claim 19 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Macovski in view of Merickel. As noted by the Examiner, Macovski fails to teach identifying soft plaque in said vessel in response to said image data and to said flow; plotting the distribution of said soft plaque; and determining the vulnerability of said soft plaque in response to said distribution. The Examiner cites Merickel as allegedly teaching these features. Merickel makes a broad reference to characterization of types of plaque, but fails to teach or suggest the steps recited in claim 19. The Examiner reasons that performing the identifying, plotting and determining would have been obvious to determine an affected area and assign a risk factor.

Applicants submit that there is simply no teaching in the references of performing these steps. The only teaching of performing these steps is in Applicants' specification and the broad reference by Merickel of characterizing plaque does not teach or suggest the steps recited in claim 19. Thus, even if Macovski and Merickel are combined, the invention of claim 19 does not result.

Claims 24-26 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Ogawa in view of Kita. Kita was relied upon for disclosing remote processing devices in communication with the imaging system. Kita, however, fails to cure the deficiencies of Ogawa discussed above with reference to claim 20. Thus, claims 24-26 are patentable over Ogawa in view of Kita.

Claim 27 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Ogawa, Tsutsui and Merickel, and further in view of Takasawa, US 6,501,827 B1 (hereinafter "Takasawa").

Takasawa discloses an examination system suitable for an x-ray photographic system. Takasawa does not cure the deficiencies described above in reference to Claim 1. For at least this reason Claim 27 is patentable over Ogawa, Tsutsui and Merickel, and Takasawa.

Claim 28 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Ogawa, Tsutsui and Merickel, Takasawa and Gordon.

As described above, any of Ogawa, Tsutsui, Merickel and Takasawa does not teach all the limitations of Claim 27. The addition of Gordon, does not cure these deficiencies. Thus, the combination of Ogawa, Tsutsui, Merickel, Takasawa and Gordon does not render Claim 28 obvious.

Claim 29 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Macovski in view of Merickel and Takasawa.

Takasawa does not cure the deficiency in Macovski in view of Merickel as described in reference to Claim 19. Thus, the combination of Macovski in view of Merickel and Takasawa does not render Claim 29 obvious.

In view of the foregoing remarks, Applicants submit that the above-identified application is now in condition for allowance. Accordingly, it is respectfully requested that this application be allowed and a Notice of Allowance be issued. If the Examiner believes that a telephone conference with Applicants' attorneys would be advantageous to the disposition of this case, the Examiner is cordially requested to telephone the undersigned.

If there are any charges with respect to this response or otherwise, please charge them to Deposit Account 07-0845 maintained by G.E. Medical Systems Global Technology Company, LLC.

Respectfully submitted,

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